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British Columbia's Forestry Sector



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Forestry has played the major role in the development of B.C. The province is endowed with abundant forests which provide innumerable benefits other than timber - benefits such as water, wildlife habitat, and recreational activity. Historically, the major benefit of British Columbia's forests has been timber. This resource has provided jobs, income, and government revenue.

In this report, we attempt to give an overview of the importance of forests to our province. The data used are the most recent available to us, and are derived from a number of sources, including Statistics Canada, the Provincial Government, and industry. We would like to thank those who gave generously of their time to provide us with the best data available.



Forestry
Canada

Forêts
Canada

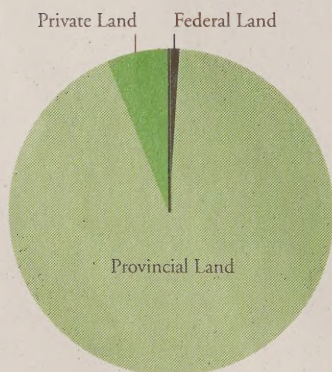
Canada



British Columbia accounts for 21% of Canada's total productive forest land, a figure which is exceeded only by the province of Quebec. In contrast, volume of timber and allowable cut vastly exceed that in any other province. B.C. accounts for 38% of Canada's total wood volume and 46% of Canada's coniferous volume.

- Land status describes the tenure or ownership and the extent to which various rights to use the land have been legally reserved or assigned.
- Provincial forest and tree farm licence areas dominate provincial land status, occupying over 80 million hectares or 86% of total land area.

Land status



Land status in British Columbia - 1987

Status	Area	
	(ha)	(%)
Federal land ¹		
National parks	475 999	0.5
Indian reserves	341 077	0.4
Defence lands	57 266	0.1
Transportation	15 477	-
Miscellaneous	31 579	-
Total federal land	921 398	1.0
Provincial land		
Provincial forests	73 897 568	78.0
Tree farm licences	6 440 779	6.8
Community pastures	167 699	0.2
Provincial parks	5 364 501	5.6
Regional parks	8 128	-
Crown land under Land act tenure	379 606	0.4
Ecological reserves (land only)	107 321	0.1
Total provincial land	86 365 602	91.1
Private land	5 686 000	6.0
Total land area	92 973 000	98.1
Total water area	1 807 000	1.9
Total area	94 780 000	100.0

¹ Environment Canada. Lands Directorate. 1986. Canada's federal lands. Ottawa.

Source: British Columbia land statistics 1989. B.C. Ministry of crown lands.

Area of forest land by ownership and productivity (00 000 ha)

	Federal	Provincial	Private	Total
Productive	4.73	486.51	19.79	511.03
Unproductive	0.85	90.46	0.57	91.87
Unspecified productivity	0.16	-	-	0.16
Unclassified	-	-	7.27	7.27
Total	5.74	576.97	27.63	610.34

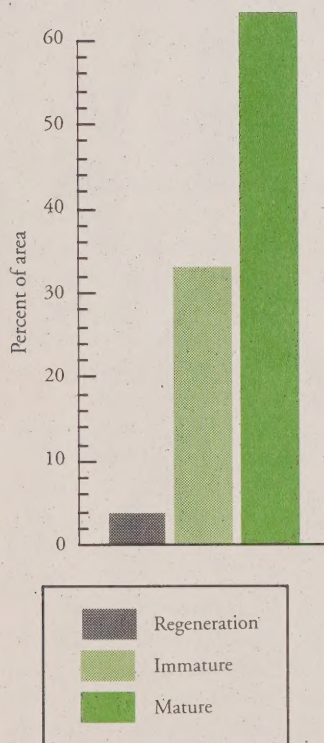
Source: B.C. Ministry of Forests, Inventory Branch (1986) Report.



The resource

- Provincial crown land accounts for 95% of total forest land and also 95% of total productive forest land.
- Softwoods account for 92% of total wood volume.
- The B.C. forest is predominantly old growth. Approximately 63% of the stocked, productive, and available land base is mature and overmature.
- The Annual Allowable Cut (AAC) on provincially regulated forest land is 74.718 million cubic metres.

Maturity of British Columbia's Forests



Areas and volumes of productive forest by maturity class

Maturity class	Area		Volume		Volume (m ³ /ha)	Uninventoried areas (00,000 ha)
	00,000 ha	%	000,000 m ³	%		
Regeneration	17.26	3.7	9.52	0.1	6	
Immature	154.14	32.9	1633.68	18.1	106	
Mature	295.17	63.1	7349.32	81.5	249	
Overmature	0.89	0.2	28.30	0.3	317	
Unclassified	0.65	0.1	-	-	-	
Not applicable	-	-	-	-	-	42.93
Total	468.10	100.0	9020.82	100.0	193	42.93

Source: B.C. Ministry of Forests, Inventory Branch (1986) Report.

Note: Due to rounding and to varying methods of calculation of certain components, figures may not tally exactly within columns.

Volume by species and forest type (000,000 m³)

Species	Forest Type			Total	Percent
	Softwood	Mixedwood	Hardwood		
Spruce	1835.13	163.11	4.26	2002.50	22.2
White pine	28.09	0.76	0.02	28.87	0.3
Jack, lodgepole & shore pine	2045.98	93.35	1.48	2140.80	23.7
Other pine	23.26	0.17	-	23.43	0.3
Balsam	1418.93	6.12	0.10	1425.15	15.8
Hemlock	1222.42	9.69	0.47	1232.58	13.7
Douglas-fir	687.62	24.36	1.09	713.06	7.8
Larch	60.09	1.11	0.03	61.23	0.7
Cedar & other					
Conifers	691.79	4.58	0.45	696.82	7.7
Trembling aspen	49.52	412.60	47.32	509.44	5.6
Other poplar	6.10	61.09	29.99	97.18	1.1
Birch	9.33	27.92	13.10	50.36	0.6
Maple	0.61	2.65	3.65	6.91	0.1
Other deciduous	4.08	22.79	5.62	32.49	0.4
Total	8082.93	830.31	107.58	9020.82	100.0

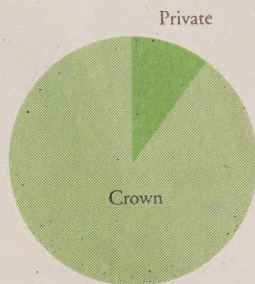
Source: B.C. Ministry of Forests, Inventory Branch (1986) Report.

Note: Due to rounding and to varying methods of calculation of certain components, figures may not tally exactly within columns.

Harvest on all land tenures meets industrial and domestic wood requirements. As would be expected, the vast majority is harvested on Provincial Crown lands, but a significant portion comes from private lands, both those included in tree farm licenses and private woodlots.

- Harvest of most species is in balance with their importance in the inventory.
- Douglas-fir and Balsam are relatively over-harvested.
- Cedar is seriously over-harvested.
- In addition to these harvests, an estimated 21.7 million cubic metres are damaged or lost to fires, insects, disease or decay annually.

Estimates of harvest proportion for 1990/91



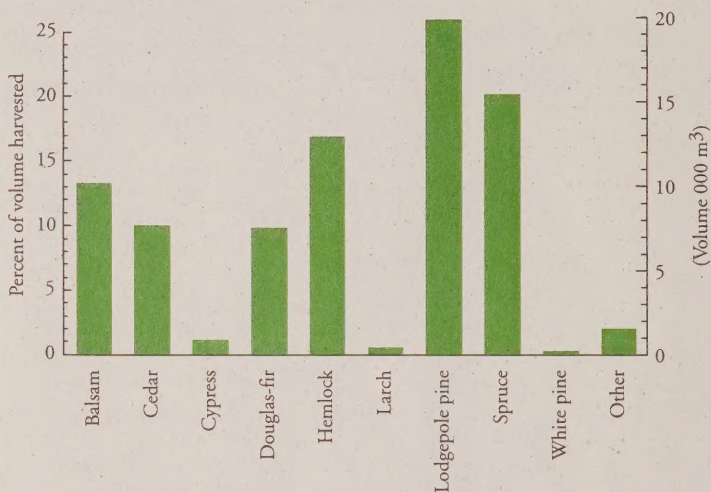
Utilization - 1988

- In 1988, the total harvest of all species was approximately 86.8 million cubic metres.
- 2.3 million cubic metres was exported, or about 2.5% of the total harvest.
- Wood industries used 51.5 million cubic metres, or about 59% of total harvest.
- Pulp paper and allied industries used 33.3 million cubic metres, or about 39% of total harvest.

Source: B.C. Ministry of Forests, Annual Report. Statistics Canada.

Note: 1988 is the most recent year for which consumption figures are available.

Harvest by species in 1990-91



Source: B.C. Ministry of Forests, Annual Report 1990-91.



Forest management

British Columbia's forests are managed on a sustained-yield, integrated-management basis.

The intention is to maintain a flow of benefits for the province's inhabitants.

The Forest Act establishes a basic framework for management of the forests, with Provincial Regulations establishing specific standards where required.

Here are a few definitions to help in understanding forest management:

Silviculture - The art and science of growing and tending a forest.

Spacing - Removal of trees from a stand to decrease the stand density, distribute the crop trees more evenly over the growing site, and create more growing room.

Fertilization - The addition of fertilizer to promote tree growth on sites deficient in one or more soil nutrients.

Site preparation - Disturbance of an area's topsoil and ground vegetation to create conditions suitable for regeneration.

Brushing - A silviculture treatment to remove brush and weed species which compete with seedlings for sunlight, water, and soil nutrients.

Conifer release - To 'release' established coniferous trees from competition from unwanted trees and shrubs which have overtopped them.

Intensive silviculture - A Ministry of Forests term that refers to the treatments carried out to maintain or increase the yield and value of forest stands. Also known as incremental silviculture.

Forest management expenditures for 1989-90 (\$000)

Activity	Province	Federal	Industry	Total
Silviculture	139 182.0		71 200.0	210 382.0
Regeneration	9129.5	6350.6		15 480.1
Tending	9449.6	11 216.0		20 665.6
Site preparation	4619.4	5100.3		9719.7
Silviculture support	6815.8	4034.4		10 850.2
Total silviculture	169 196.4	26 701.3	71 200.0	267 097.7
Protection			17 600.0	17 600.0
Fire	77 937.0	-		77 937.0
Pests	5819.7	-		5819.7
Total protection	83 756.7	-	17 600.0	101 356.7
Resource access	15 911.0	-	230 500.0	246 411.0
Inventory	13 496.0	-		13 496.0
Research	14 345.4	15 212.6		29 558.0
Timber management	36 571.3	2290.7		38 862.0
Administration/other	100 300.5	4968.2	150 100.0	255 368.7
Total	433 577.4	49 172.7	469 400.0	952 150.1

Source: B.C. Ministry of Forests; Forestry Canada, Pacific and Yukon Region.

Silviculture accomplishments on Crown land in 1990-91¹

Silviculture activity	Area (ha)
Surveying	627 145
Preparing sites	117 691
Planting	204 277
Brushing	57 661
Conifer release	2002
Spacing	21 696
Fertilizing	3426
Rehabilitating sites	19 933
Other ²	4254
Total area treated	1 058 085
Seedlings planted	245 595 000

Source: B.C. Ministry of Forests Annual Report 1990-91.

Notes:

- Includes accomplishments under:
Sustainable environment fund
South Moresby forest replacement account
Small business forest enterprise program
Forest enhancement and other sources
Private sector
- Includes pruning, controlling mistletoe, falling snags and residual trees.

British Columbia forests provide a wide range of benefits to British Columbia's population, to the rest of Canada, and by extension to the world. Timber, of course, is the most visible, economically important benefit. The forest industry provides substantial direct employment, with equal or greater indirect employment.

Timber is not the only benefit received from British Columbia's forests. In addition to the amenity values which are often taken for granted (for example, over 2 million visits every year to Ministry of Forests recreation sites and trails) and which make our province a great place to live, consumptive activities such as tourism, fishing, hunting, and

Fish and wildlife statistics 1990-91

Hunting & trapping	
No. licences	504 424
Licence revenue	\$7 403 893
Fishing	
No. licences	466 311
Licence revenue	\$7 067 453
Guiding	
No. licences	1819
Licence revenue	\$181 360
Estimated guide Royalties	\$168 485
Estimated fur harvest value	\$1 393 126
Total estimated direct revenue	\$16 214 317

Source: B.C. Ministry of Environment, Wildlife Branch and Fisheries Branch.

Notes:

Trapping participation - in 1990-91 a total of 1931 trapping licences was sold. An unknown number of natives also trap. Most trapping in B.C. is done to provide a livelihood, although significant numbers of people trap for recreation, for animal control, or out of tradition.

The forest industry in B.C. - 1989

	Establishments	Employees	Salaries and wages	Cost of fuel, electric., material & supplies	Value of shipments	Value added
					\$000,000	
Logging industry	3801	20316	812.5	2612.3	4351.7	2812.2
Wood industries	687	42416	1619.5	4405.5	7193.0	2771.8
Sawmills and planing mills	289	29959	1220.7	3478.2	5613.8	2111.1
Shingle and shake industry	64	1328	42.0	141.0	209.0	68.8
Veneer and plywood industry	26	4571	169.2	328.5	610.3	278.0
Other	308	6558	187.6	457.8	759.9	313.9
Paper and allied industries	69	18643	873.5	2809.1	5781.1	2988.5
Pulp & paper industry	25	16723	803.4	2618.2	5454.8	2851.2
Other	44	1920	70.1	190.9	326.3	137.3
Total	4557	81375	3305.5	9826.9	17325.8	8572.5

Source: Statistics Canada.

Note: The latest data available are for 1989.

trapping provide income to portions of the population.

The forestry sector is a major source of revenues for the provincial and federal governments. These revenues help to provide the many government programs which British Columbians and other Canadians have come to expect as their right.

- Primary and secondary processing industries in B.C. provide direct employment for over 80 000 people.
- Wages and salaries paid total more than \$3 billion.
- In addition to direct employment in the forest industry, employment is also generated in supplying goods and services to the industry. This multiplier effect is estimated to result in the creation of two additional jobs in B.C. for each direct job.

Forest product exports by commodity - 1990

	Value (\$000)	%
Logs, poles and pulpwood	113 545	1.2
Lumber (softwood)	3 791 553	41.6
Cedar shakes and shingles	208 888	2.3
Softwood siding, moulding, other milled	170 407	1.9
Plywood (softwood)	93 771	1.0
Pulpwood chips	136 274	1.5
Pulp	3 080 919	33.8
Newsprint	1 082 078	11.9
Paper, paperboard-except newsprint	409 417	4.5
Converted paper	31 496	0.3
Total	9 118 348	100.0

Source: Statistics Canada.

Thus, the 80-000 jobs in the forest industry support 160 000 jobs in other sectors of the provincial economy.

- B.C. forest product exports accounted for 41.3% of total forest product exports from Canada.

- The United States was the foremost trading partner of the forestry sector in B.C.; it received exports valued at \$4.3 billion, almost half of all forest product exports.

Forest product exports by destination - 1990

	Lumber	Pulp	Newsprint	All other	Total	% of total
	\$ 000					
United States	1 963 561	872 682	818 444	653 672	4 308 359	47.2
Japan	1 011 235	508 209	21 092	245 373	1 785 909	19.6
European Community	603 998	1 117 096	58 399	161 632	1 941 125	21.3
All other countries	212 759	582 932	184 143	103 121	1 082 955	11.9
Total	3 791 553	3 080 919	1 082 078	1 163 798	9 118 348	100.0
% of total	41.6	33.8	11.9	12.8	100.0	

Source: Statistics Canada.

Note: Due to rounding and to varying methods of calculation of certain components, figures may not tally exactly within columns.

- Total volume of logs exported from B.C. in 1990-91 accounted for 1.0% of total volume harvested in 1990-91.
- Declining prices contributed to an 8.5 percent decline in the value of forest products in 1990.
- Forest exports account for more than half the value of all commodities exported from B.C..
- Total forest imports for 1990 amounted to \$0.5 billion. This figure does not indicate imports consumed in B.C., it does indicate the volume of imports that are processed through B.C. customs ports.
- The above import figure gives B.C. a favorable trade balance figure of \$8.6 billion in forest

Value of B.C. forest exports compared to other sectors - 1990

	\$000	% of total
Lumber	3 791 553	22.8
Other wood	722 885	4.3
Wood pulp	3 080 919	18.5
Newsprint	1 082 078	6.5
Other paper/paperboard	440 913	2.6
Total forest products	9 118 348	54.8
Vegetable products	200 789	1.2
Chemicals & products	293 927	1.8
Fish products	710 073	4.3
Base metals and articles	1 864 867	11.2
Coal, petroleum and		
Natural gas, fuel oil	1 903 808	11.4
Other	2 556 021	15.4
Total exports	16 647 833	100.0

Source: Statistics Canada

Volume of logs exported from B.C. by species in 1990-91

	Exported under permit ¹		Other exports ²		Total	
	Volume	%	Volume	%	Volume	%
Balsam	181	23.3	11	1.4	192	24.7
Cedar	**	-	2	0.3	2	0.3
Cypress	2	0.3	14	1.8	16	2.1
Douglas-fir	29	3.7	33	4.3	62	8.0
Hemlock	254	32.7	23	3.0	277	35.7
Lodgepole pine	23	3.0	**	-	23	3.0
Spruce	170	21.9	17	2.2	187	24.1
Other softwood	**	-	0	-	**	-
Cottonwood	5	0.6	0	-	5	0.6
Other hardwood	7	0.9	5	0.6	12	1.5
Total	671	86.5	105	13.5	776	100.0

Source: B.C. Ministry of Forests, Annual Report 1990-91.

Notes:

1. Export permit granted under section 137 of the Forest Act logs harvested from provincial crown land, private land within a tree farm licence area, and from private land granted by the crown after March 12, 1906.

2. No export permit required under the Forest Act logs harvested from private land that was granted by the crown prior to March 13, 1906, and is not within a tree farm licence area, and logs harvested from federal land and indian reserves.

** Indicates volume less than 500 cubic metres.

Note: Due to rounding and to varying methods of calculation of certain components, figures may not tally exactly within columns.

products. This is an extremely significant figure for B.C. when you consider that net exports (plus a statistical discrepancy) for B.C. were -\$239 million in 1990.

- Total forest product exports accounted for 11.5% of the province's total gross domestic product (GDP).
- In 1990 logging accounted for more than 30% of B.C.'s GDP from the primary sector. It accounted for approximately 42% of Canada's contribution to GDP from logging.

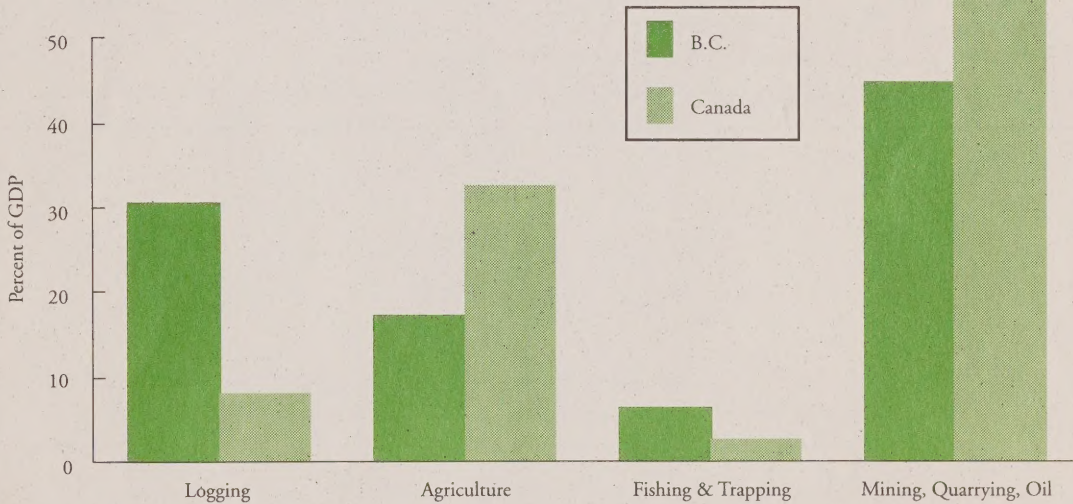
Gross domestic product at factor cost in the primary sector-1990 (1986 dollars)

	B.C.		Canada	
	\$000,000	%	\$000,000	%
Logging	1180	30.7	2835	8.1
Agriculture	675	17.5	11 470	32.8
Fishing and trapping	259	6.7	932	2.7
Mining, quarrying, oil	1734	45.1	19 783	56.5
Total	3848	100.0	35 020	100.0

Source: Statistics Canada and B.C. Ministry of Finance and Corporate Relations.

Note: Due to rounding and to varying methods of calculation of certain components, figures may not tally exactly within columns.

Gross Domestic Product



Gross domestic product at factor cost in the manufacturing industries-1990 (1986 dollars)

	B.C.		Canada	
	\$000,000	%	\$000,000	%
Forestry				
Wood industries	2293	29.1	4811	5.3
Paper & allied ind.	1588	20.2	7951	8.8
Total forestry	3881	49.3	12 763	14.1
Food & beverages	879	11.2	12 063	13.3
Petroleum & coal products	192	2.4	1942	2.1
Chemicals	263	3.3	6864	7.6
Furniture & fixtures	70	0.9	1453	1.6
Primary metal products	308	3.9	6685	7.4
Metal fabricated products	434	5.5	6405	7.1
Machinery and equipment	333	4.2	3678	4.0
Transportation equipment	306	3.9	12 594	13.9
Electrical & electronic equipment	199	2.5	7757	8.5
Non-metallic mineral products	285	3.6	3005	3.3
Other manufacturing	729	9.3	15 633	17.2
Total manufacturing	7879	100.0	90 838	100.0

Source: Statistics Canada and B.C. Ministry of Finance and Corporate Relations.

Note: Due to rounding and to varying methods of calculation of certain components, figures may not tally exactly within columns.

663
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1141
59

x x 1.63 x = 522

429
223

- Forest manufacturing accounted for nearly half of total GDP from all B.C.'s manufacturing industries. It accounted for more than 30% of Canada's GDP from all forest manufacturing in Canada. B.C.'s forest manufacturing industries contributed over 4% of GDP from all manufacturing industries in Canada.
- It is easy to see the importance of the forest industry in B.C. to the economy of both B.C. and Canada with approximately 53% and 5% respectively of total manufacturing.
- In 1990 the GDP of the forest sector in B.C. accounted for 8% of the total provincial GDP.

Gross domestic product at factor cost of manufacturing industries-1987 by province in 1986 dollars

	Manufacturing industry	Forest industry	Forest industry as % of manufacturing
	———— (\$000,000) ————		
Newfoundland	594	N.A.	N.A.
Prince Edward Island	104	6	5.8
Nova Scotia	1665	283	17.0
New Brunswick	1548	602	38.9
Quebec	23 067	3844	16.7
Ontario	48 223	3418	7.1
Manitoba	2324	183	7.9
Saskatchewan	1068	N.A.	N.A.
Alberta	4222	466	11.0
British Columbia	8138	4278	52.6
Yukon & Northwest Territories	15	N.A.	N.A.
Canada	90 967	13 352	14.7

Source: Statistics Canada.

Data for Newfoundland, Saskatchewan and Yukon and Northwest Territories are not available.

Note: The latest data available are for 1987

Note: Due to rounding and to varying methods of calculation of certain components, figures may not tally exactly within columns.

Taxes and other payments to governments - 1990

- * Total 1990 payments to all levels of government by the forest industry and by its employees related to B.C. operations were \$2.6 billion. Of this amount, \$1.25 billion was paid to the provincial government and \$133 million to municipalities.
- * Income taxes, sales taxes, stumpage, royalties and other miscellaneous taxes paid and currently payable by the industry amounted to \$1.25 billion. Income taxes and other payments to government by or on behalf of employees amounted to \$1.3 billion in 1990.
- * The forest industry purchased some \$325 million of electricity in 1990. Included in the price is some \$74 million of provincial sales taxes, water rental fees and other taxes, including grants in lieu of taxes. Property taxes were \$133 million in 1990.

Source: Price Waterhouse.



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